

PACIFIC PROPERTY  
SE $\frac{1}{4}$ , SW $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec. 18, T 6S, R 97W

HOLE NO. PAC - 3

DATE DRILLED 11/14/80 - 11/21/80

COORDINATES 627,365.5 NORTH 1,219,427.0 EAST

SURFACE ELEVATION 8,357.7 FEET

TOTAL DEPTH 1,105 FEET

CORED INTERVAL 520 - 1,105 FEET

LENGTH AND DIAMETER OF SURFACE CASING 20' x 6 5/8"

SIZE OF CORE 3 INCHES

CONTACT UINIA FORMATION - GREEN RIVER FORMATION 563 FEET

<u>KEY BEDS</u>	<u>DEPTH</u>	<u>ELEVATION</u>	<u>ELEVATION RELATIVE TO MM</u>
UPPER WAVY BED (BASE)	<u>952.1</u>	<u>7,405.6</u>	<u>+ 67.3</u>
A-GROOVE (BASE)	<u>999.6</u>	<u>7,358.1</u>	<u>+ 19.8</u>
MAHOGANY MARKER (TOP)	<u>1,019.4</u>	<u>7,338.3</u>	<u>0</u>
B-GROOVE (TOP)	<u>NA</u>	<u>-</u>	<u>-</u>

# CLEVELAND — CLIFFS

1/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
	520				.47 .92	<u>522.00' to 522.85'</u> Sandstone, very pale orange, wavy irregular laminations.
#1	521				.36 .74	
RQD 94	522				.50 .71	<u>522.85' to 525.25'</u> Sandstone, very pale orange, no banding.
	523				.13 .64	
	524				.35 .83	
	525				.40	<u>525.35' to 525.35'</u> Shale, medium light gray. <u>525.35' to 525.80'</u> Sandstone, very pale orange. <u>525.80' to 526.00'</u> Siltstone, dary yellow brown.
	526	.22 .65			.10 00	<u>526.00' to 526.90'</u> Sandstone, very pale orange. <u>526.90' to 527.30'</u> Siltstone, dark yellow brown.
	527				.38 .87	<u>527.30' to 535.10'</u> Sandstone, pale yellow brown.
	528				.33	
	529				00 .92	
	530				.61	
	531				.12 .35 .93	
	532				.44	
	533				.12 .86	
	534				.40	
	535				00 .08 .57	<u>535.10' to 535.57'</u> Sandstone, moderate yellow brown with disseminated sulfides. <u>535.57' to 537.30'</u> Sandstone, moderate yellow brown.
	536				.31 .80	
	537		.20 --- .50		.30 .82	<u>537.30' to 537.82'</u> Tuff, dark yellow brown, calcareous. <u>537.82' to 541.20'</u> Sandstone, very pale orange.
	538				.26 .90	
.71 X	539				.40 .57 .71	<u>539.16' to 531.33'</u> Tuff, light gray. <u>540.10'</u> White mineralization.
#2	540				.10 .80	
RQD 67	541					<u>541.20' to 543.43'</u> Siltstone, moderate yellow brown.
	542				.14 .52	

## CLEVELAND — CLIFFS

2/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	543				.43 .75	543.43' to 544.83' Tuff, very light gray siliceous, minor pale yellow brown laminations. 544.83' to 549.00' Siltstone, pale yellow brown.
	544				.06 .83	
	545		.14 — .53		.14 .53	549.00' to 556.72' Sandstone, light gray, siliceous.
	546		.11 — .49		.19 .87	
	547		— .15		.68	
	548		.70 —		.39	
	549		— .55		.03	
	550		.00		.36	556.72' to 563.00' Siltstone, dark yellow brown, calcareous.
	551				.05 .69	
	552					
	553		.89 —			
	554				.33 .80	
	555				.64 .98	563.00' to 564.50' Tuff, light brown, wavy and irregular laminations. 564.50' to 565.80' Oil shale, low to medium grade, pale and moderate yellow brown, calcareous. 565.80' to 573.70' Oil shale, low grade, pale yellow brown, calcareous.
	556				.30 .72	
	557				.48	
	558				.16	
.15 X	559				.15	
#3	560					
RQD 73	561					
	562	.95			.95	
	563				.52	
	564				.17 .42	
	565				.34 .75	
	566		.90 —		.16 .94	

## CLEVELAND — CLIFFS

3/25

		HOLE NO. 3		PROJECT: Pacific Property	
RUN	DEPTH	FRACTURES			LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	
	567		.40		
	568		.52		
	569				.05 .80
	570		.35		.22
	571	.84			.84
	572				6 Total
	573				.18 .47 .00 .18 .35 .82 .08
	574				.60
	575				.63
	576				.32 .86
	577				.20 .42 .99
	578			Rubble →	.40 .55
*00	579		.00		
#4	580				
RQD 21	581				
	582		.17		.70
	583	.40 .79			.09
	584	.09 .95	.65 .95		.24 .45 .65
	585	.20			.40
	586		.00		.00
	587		.40 .98		.10 .42 .77 .98
	588			Rubble →	
	589		.88		.95
	590		.51		.51

573.70' to 575.50' Oil shale, high grade, dusky yellow brown, thinly laminated.

575.50' to 579.00' Oil shale, low grade, pale and moderate yellow brown, calcareous.

579.00' to 589.40' Oil shale, very low grade, very pale orange and pale yellow brown, numerous core induced parting planes, approximately 1/4" thick, indistinct 1 - 2" bands.

585.50' Mud filled vugs.

589.40' to 592.55' Oil shale, low to medium grade, dark, moderate, and pale yellow brown speckled appearance.

## CLEVELAND — CLIFFS

4/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C.I.	
	591					
.55 X	592		.55			592.55' to 594.00' Oil shale, low grade, pale yellow brown.
#5	593		.15			
RQD 61	594				.03 .75	594.00' to 594.10' Pyritic band. 594.10' to 594.90' Oil shale, very low grade, grayish orange.
	595				.29 .59 .73	594.12' to 594.15' Tuff band. 594.90' to 598.50' Oil shale, medium grade, dark yellow brown, wavy and distorted with nahcolite lenses. Black mineralization, conchoidal fractures (organic spots).
	596		.73 .18		.18 .44	
	597					
	598				.06 .45	598.50' to 601.90' Oil shale, medium grade, dark yellow brown.
	599		.53		.12, .52 .40, .80	
	600		.10		.10 .48	
.90 X	601				.11 .90	601.90' to 606.32' Oil shale, low to medium grade, moderate, pale, and dark yellow brown.
#6	602				.33 .67 .00	
RQD 41	603		.52 .68		.52 .68 .93	
	604		.42 .85		.11, .42 .21, .70 .80	
	605				.19, .69 .50, .94	
	606		.61		.17, .61 .32, .69	606.32' to 607.55' Oil shale, low to medium grade, moderate, pale, and dark yellow brown, vuggy with nahcolite.
	607		.55		.08, .39 .25, .55	607.55' to 611.45' Oil shale, low to medium grade, pale and dark yellow brown.
	608		.50		.50	
	609		.13		.11 .73 .92	
	610		.73		.21, .73 .43, .93	
.45 X	611				.45	611.45' to 624.75' Oil shale, low grade, pale yellow brown.
#7	612		.50		.10 .50	
RQD 81	613		.20		.20 .32 .72	
	614				.10 .75	614.70' Nahcolite lens

## CLEVELAND — CLIFFS

5/25

		HOLE NO. 3		PROJECT: Pacific Property		
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	615				.48	
	616				.25 .85	
	617				.80	
	618				.31 .50 .75	
	619				.39	
	620				.45 .81 .95	
	621		.40 .80		.40 .80	
	622				.75	
	623				.57 .86	
	624				.68 .95	624.75' to 639.45' Oil shale, low to medium grade, moderate yellow brown.
	625					
	626				.27 .45	
	627				.26 .50 .79	
	628				.23 .61 .90	
	629				.55 .93	
.35 X	630				.19, .70 .35, .94	
#8	631				.25 .82	
RQD 74	632				.07 .50	
	633				.24, .67 .47, .75 .76	
	634				.06 .18 .44	
	635				.90	
	636				.50 Cavity	
	637				.15	
	638					

## CLEVELAND — CLIFFS

6/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
.45 *	639				.45 .60	639.45' to 640.63' Oil shale, low to medium grade, pale and moderate yellow brown, thin wavy bedded.
#9	640					640.63' to 641.55' Oil shale, medium grade, dark yellow brown, abundant nahcolite (lenses & spots).
RQD 59	641	.69			.47	641.55' to 641.65' Oil shale, medium grade, dark yellow brown band.
	642		30° 40° 62° 78°		.40 .62 .78	641.65' to 644.20' Oil shale, low to medium grade, pale and dark yellow brown, thin laminations.
	643				.33	
	644	.55 .78		Rubble	.10 .55	644.20' to 646.10' Oil shale, low grade, pale and dark yellow brown.
	645	.49 .80				
	646	.49 .72	.75 30°		.12 .75	646.10' to 647.83' Oil shale, low to medium grade, moderate and dark yellow brown.
	647	.54 .74 .85	.12		.12	647.83' to 649.64' Oil shale, low to medium grade, pale to dark yellow brown.
	648			Rubble	.19	
.64 *	649				.00 .40 .64	649.64' to 654.25' Oil shale, low grade, pale yellow brown.
#10	650				.40	650.40' Nahcolite lens 650.60' Nahcolite lens
RQD 74	651				.05 .42 .85	
	652			Rubble	.19 .51	
	653	.01			.43	
	654	.51			.25 .43 .67	654.25' to 656.00' Oil shale, low grade, pale and moderate yellow brown, vuggy nahcolite zone.
	655				.01, .72 .50, .78 .95	
	656			Rubble	.40 .55	656.00' to 658.00' Oil shale, low grade, pale yellow brown, calcareous.
	657	.99		Rubble	.10 .62	
	658	.82	.20 .40		.40	658.00' to 659.00' Oil shale, low grade, pale yellow brown, lenses and veins of nahcolite common.
	659				.10 .35 .75	658.44' & 658.85' Nahcolite lenses. 659.00' to 665.39' Oil shale, low grade, pale and dark yellow brown, nahcolite lenses and blebs are common.
	660				.10 .34 .72	
	661	.60			.05 .27 .90	
	662				.60	

## CLEVELAND — CLIFFS

7/25

HOLE NO. 3						PROJECT: Pacific Property	
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION	
		P P	JOINT	SLICK	C. I.		
	663						
	664		.85		.85		
.39 X	665		.39		.39 .65 .95	665.39' to 673.25' Oil shale, low grade, pale yellow brown with some thin laminae of dark yellow brown.	
#11	666				.30, .75 .45, .95		
RQD 28	667			Rubble →	.15 .35	667.35' - 667.60' Tuff, vuggy 673.10' - Tuff, altered, band	
	668			Rubble →	.00 .80		
	669			Rubble →	.00		
	670				.24, .61 .40, .80 .98		
	671				.25 .48 .86		
	672		.40 .90		.15, .71 .40, .90	673.25' to 674.60' Oil shale, low grade, pale yellow brown with moderate yellow brown bands.	
	673				.25 .40	674.60' to 677.79' Tuff, medium light gray, minor marlstone lenses.	
	674		.50		.50		
	675				.30 .91		
	676			Rubble →	.25 .73		
.79 X	677				.00 .79	677.79' to 678.40' Tuff, light gray, leached and altered.	
#12	678				.07, .42 .25, .50 .35, .67	678.40' to 679.00' Oil shale, pale yellow brown with grayish orange bands, vuggy and porous texture.	
RQD 62	679				.80 .28 .60 .72	679.00' to 689.00' Oil shale, low grade, pale yellow brown with grayish orange bands.	
	680		.67 .92		.38 .67 .92		
	681				.14 .76		
	682				.20 .55		
	683				.08 .42		
	684		.60 .20		.04 .98		
	685		.30 .45		.30 .45		
	686				.20 .74		



## CLEVELAND — CLIFFS

8/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I	
	687		.09 30		.09 .60	
	688				.65	
	689				.09 .15 .60	689.00' to 694.30' Oil shale, low grade, pale yellow brown with bands of grayish orange, thinly laminated.
	690		.67		.03 .53 .67	
	691		30		.30 .45 .85	
	692				.35	
	693			Rubble →		
.49 X	694				.49 .66	694.30' to 700.00' Sandstone, very pale orange, fine grained.
#13	695			Rubble →	.43 .70	
RQD 52	696				.10 .54 .93	
	697			Rubble →	.70	
	698				.34 .62 .85	
	699				.18 .40 .80	700.00' to 707.15' Oil shale, low grade, pale and dark yellow brown with some very thin nahcolite lenses.
	700		.20		.20	
	701				.18 .70	
	702			Rubble →	.90	
	703				.23, .58 .30, .62 .49, .80	703.45' - 703.90' Vuggy, leached nahcolite
	704				.48	
	705				.21, .50 .42, .83	
	706				.11 .18 .70	707.15' to 708.80' Oil shale, low grade, pale and dark yellow brown with pitted texture from leached nahcolite.
	707				.28 .55 .86	
	708				.38 .63 .80	708.80' to 711.80' Oil shale, low grade, pale yellow brown.
	709				.18 .50 .92	
	710		.92 43		.43	

## CLEVELAND — CLIFFS

9/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I.	
	711				.05, .50 .22, .80	711.80' to 712.35' Marlstone, vuggy and leached.
	712				.40 .63	712.35' to 714.29' Oil shale, low grade, pale and dark yellow brown.
	713				.08 .48 .76	714.29' to 715.20' Oil shale, low grade, pale yellow brown.
.29 X	714				.20 .29 .91	715.20' to 715.38' Sandstone, brownish gray, fine grained.
#14	715	.20 .63			.85	715.38' to 715.50' Oil shale, low grade, pale yellow brown, calcareous.
RQD 66	716				.47 .82	715.50' to 715.63' Sandstone, brownish gray.
	717	.22, .30 .27, .60	.10		.10, .48 .13, .95	715.63' to 717.00' Oil shale, low grade, pale and moderate yellow brown.
	718		.80 .50		.10 .18	717.00' to 717.60' Oil shale, low grade, pale yellow brown, vuggy texture.
	719				.27	717.60' to 718.77' Oil shale, low grade, pale yellow brown.
	720				.75 .82	717.80' Tuff, 1/2" band 718.12' to 718.30' Tuff
	721	.08 .15 .20			.00 .20	718.77' to 721.00' Oil shale, low to medium grade, pale and moderate yellow brown.
	722	.90	Rubble →		.90	721.00' to 722.60' Oil shale, low grade, pale yellow brown, very vuggy zone.
	723				.35 .45 .63	722.60' to 722.90' Sandstone, red brown, extremely leached.
	724				.21	722.90' to 729.69' Oil shale, low grade, pale yellow brown.
	725					
	726	.40 .47			.40 .47	
	727	.50				
.22 X	728	.94	.22 .94		.22 .94	729.69' to 730.08' Sandstone, light gray, with wavy laminations.
#15	729	.69				730.08' to 741.00' Oil shale, low grade, pale yellow brown, indistinct laminations.
RQD 62	730	.08 .56				
	731	.24				
	732		.40 .85			
	733	.45 .52			.30	
	734				.23	

## CLEVELAND — CLIFFS-

10/25

HOLE NO. 3						PROJECT: Pacific Property	
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION	
		P. P.	JOINT	SLICK	C. I.		
	735		.45 .80				
	736				.71		
	737						
	738	.16	.16 .50		.85		
	739	.27 .95	.25		.27 .95		
	740				.55		
	741	.04	.90		.04	741.00' to 741.77' Oil shale, medium grade, dark and moderate yellow brown, thin laminations.	
	742	.66			.66 .93	741.77' to 744.72' Oil shale, low grade, pale and moderate yellow brown, some small vugs.	
	743	.09	.94 Rubble		.52 .94	744.72' to 744.85' Oil shale, very low grade, very pale orange.	
	744	.16 .72	.30 .72		.16	744.85' to 747.85' Oil shale, low grade, pale and moderate yellow brown, indistinct laminations.	
	745	.23 .42 .97	.42 .97		.23 .42 .61		
	746	.59 .65 .96	.06 .65 .96 Rubble		.06 .65 .96	747.85' to 748.41' Oil shale, low to medium grade, pale, and dark yellow brown.	
	747				.22 .75		
.41 X	748				.15 .41	748.41' to 753.20' Oil shale, low grade, pale yellow brown, extremely vuggy, leached zone.	
#16	749		Rubble		.78		
RQD 23	750		.10 .30		.45 .60 .95		
	751		.61 .80 Rubble		.25 .55 .90		
	752				.20 .55 .85		
	753		Rubble		.10 .40 .80	753.20' to 757.40' Oil shale, low grade, pale yellow brown, no leached zone.	
	754				.20 .50		
.26 #17	755		Rubble		.26		
RQD 11	756		.00 .90 Rubble			757.40' to 758.50' Oil shale, low grade, pale yellow brown, minor leaching.	
	757				.60	758.50' to 759.06' Oil shale, low grade, red brown, extremely leached.	
	758		Rubble		.00		

## CLEVELAND — CLIFFS

11/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
.06	759		.60		.06	759.06' to 761.70' Oil shale, low grade, pale yellow brown, minor leaching. 761.70' to 762.77' Oil shale, low grade, red brown, extremely leached.
↑				Rubble →		
#18	760	Healed			.70	
RQD 52	761	.54	.37		.37	762.77' to 763.66' Oil shale, low grade, pale yellow brown, minor leaching. 763.66' to 764.40' Oil shale, low grade, pale yellow brown, no leached zone.
	762				.06, .44 .77, .90	
	763		.92			
	764	.17 .45	.29		.17 .29	764.00' to 767.75' Oil shale, very low grade, very pale orange and pale yellow brown, very thin laminations.
	765	.52 .90				
	766					
	767		.50 .65		.08 .50	767.75' to 771.16' Oil shale, low grade, pale yellow brown.
	768				.30	
	769				.20 .55	
	770				.32, .00 .68 .80	771.16' to 774.26' Oil shale, low grade, pale and moderate yellow brown.
.16 *	771				.16	
	772				.45 .68 .90	
#19	773	.53		Healed	.53	774.26' to 774.75' Oil shale, low grade, red brown, extremely leached. 774.75' to 775.20' Oil shale, low to medium grade, pale, moderate, and dark yellow brown. 775.20' to 781.00' Oil shale, low grade, pale yellow brown.
RQD 54	774		.26	Rubble →	.55	
	775	.38	.38			
	776				.45	781.00' to 782.10' Oil shale, low grade, pale and moderate yellow brown, thinly laminated. 782.10' to 782.80' Oil shale, low grade, pale yellow brown, calcareous. 782.80' to 786.55' Oil shale, low to medium grade, pale and moderate yellow brown.
	777	.08, .53 .85, .95	.58			
	778	.15, .44 .53, .85	.52		.85	
.56 *	779			Rubble →	.56 .76	
	780		.50			
#20	781	.91			.12 .91	
RQD 96	782					

## CLEVELAND — CLIFFS

12/25

		HOLE NO. 3		PROJECT: Pacific Property		
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	783					
	784					
	785	.25	.15 <sup>00</sup>		.25	
	786				.35	786.35' - Tuff lens 786.55' to 788.08' Oil shale, low grade, indistinct laminations.
	787					
	788	.15			.59	788.08' to 788.59' Oil shale, medium to rich grade, dark yellow brown with some thin wavy pale yellow brown laminations.
	789					788.59' to 788.95' Oil shale, medium grade, dark and moderate yellow brown.
	790					788.95' to 789.70' Oil shale, low to medium grade, pale and moderate yellow brown.
	791	.22				789.70' to 794.85' Oil shale, low grade, pale yellow brown, indistinct laminations.
	792					793.78' - Tuff, reddish brown, 1" band
	793					
	794				.00	794.85' to 796.35' Oil shale, low to medium grade, pale and moderate yellow brown.
	795					796.35' to 799.00' Oil shale, low grade, pale yellow brown.
	796					
.40	797				.40	
#21	798				.33	799.00' to 800.30' Oil shale, low grade, pale and moderate yellow brown with wavy medium laminations.
RQD 90	799					800.30' to 801.45' Oil shale, low to medium grade, pale and dark yellow brown with 1" bands.
	800					
	801				.11	801.45' to 802.08' Oil shale, low grade, pale yellow brown, thin laminations.
	802					802.08' to 803.90' Oil shale, low grade, pale yellow brown.
	803				.42	803.90' to 808.82' Oil shale, low grade, pale and moderate yellow brown, indistinct laminations.
	804	.69	.33		.69	
	805		.45			
	806					

## CLEVELAND — CLIFFS -

13/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
	807			-	.49	807.75' - Tuff, brown, 1" band, wavy laminations.
.82 *	808				.82	808.38' to 808.57' - Tuff, brown, lenticular
#22	809				.08	808.82' to 819.15' Oil shale, low to medium grade, pale and moderate yellow brown, indistinct laminations.
RQD 67	810					
	811				.94	
	812					
	813					
	814					
	815					
	816					
	817		.60			
	818		.45		.45	
	819		.05			819.15' to 821.45' Oil shale, low grade, pale yellow brown; some 1" bands.
	820		.15		.67	821.10' to 821.21' - Tuff, brown, sandy
	821	.81				821.45' to 823.50' Oil shale, low grade, pale and moderate yellow brown, 1/4" laminations.
	822	.21				
	823	.18	.10			823.50' to 827.88' Oil shale, low grade, pale and moderate yellow brown, indistinct laminations.
	824	.56	.64			824.93' - Tuff, light gray and pale yellow brown, 1/2"
	825	.54 .67	.54			
	826					
	827	.22			.22	827.88' to 828.81' Oil shale, low to medium grade, pale and moderate yellow brown with 1/4" laminations.
.81 *	828				.67 .81	828.81' to 831.70' Oil shale, low to medium grade, pale and moderate yellow brown, indistinct laminations.
#23	829				.72	
RQD 93	830	.61			.61	

## CLEVELAND — CLIFFS -

14/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I.	
	831	.68		-	.68	831.70' to 832.82' Oil shale, low grade, pale and moderate yellow brown.
	832					832.83' to 833.60' Oil shale, low to medium grade, pale and dark yellow brown, medium laminations, calcareous.
	833	.09			.09	833.60' to 834.65' Oil shale, medium grade, dark and pale yellow brown, 1" bands.
	834	.42			.42	834.65' to 836.25' Oil shale, low grade, pale and moderate yellow brown, medium laminations.
	835	.11			.11	836.25' to 840.40' Oil shale, low to medium grade, pale and dark yellow brown, medium laminations.
	836	.62			.62	
	837				.36	837.00' Tuff lens
	838	.25				838.42' Tuff, band 1/2", brown
	839				.16	
	840	.20				840.40' to 843.55' Oil shale, low grade, pale and moderate yellow brown, indistinct laminations.
	841				.57	
	842				.48	
	843				.74	843.55' to 844.45' Oil shale, low to medium grade, wavy laminations, pale and dark yellow brown.
	844					844.45' to 848.30' Oil shale, low grade, pale and dark yellow brown, medium laminations.
	845	.53			.53	844.50' Tuff, light brown, 1/4" band
	846	.28			.28	849.30' to 848.82' Oil shale, low to medium grade, pale yellow brown, medium laminations.
	847		Torsional Fractures		.42 .65	
.82 X	848				.51	848.82' to 850.20' Oil shale, medium grade, dark yellow brown, calcareous.
#24	849				.80	
RQD 87	850				.63	840.20' to 855.10' Oil shale, low grade, pale yellow brown.
	851	.60				
	852	.82			.82	
	853		.00 -.30		.67	
	854				.29	

## CLEVELAND — CLIFFS

15/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
	855	.04			.04	855.10' to 856.00' Oil shale, low to medium grade, pale and dark yellow brown.
	856	.40				856.00' to 860.00' Oil shale, low grade, pale yellow brown.
	857				.13 .70	
	858	.40			.39 .40	
	859				.17	
	860	.65			.65	860.00' to 861.70' Oil shale, low grade, moderate and pale yellow brown.
	861					861.70' to 862.25' Oil shale, very low grade, pale yellow brown and very pale orange.
	862	.18 .25			.18	862.25' to 863.45' Oil shale, high grade, dusky yellow brown.
	863	.15 .99				863.45' to 863.80' Oil shale, medium grade, dark and dusky yellow brown.
	864	.71	.71		.71	863.80' to 867.80' Oil shale, medium to low grade, pale and dark yellow brown.
	865	.48	.68			867.80' to 869.60' Oil shale, low grade, pale yellow brown.
	866	.95	.95	Rubble	.30 .95	870.11' Tuff, pale yellow brown, 1/2" band
	867	.71	.71			
<del>.82</del> X	868				.45 .82	
#25	869					869.60' to 870.70' Oil shale, medium grade, dark and pale yellow brown.
RQD 92	870	.11			.11	870.70' to 875.45' Oil shale, low grade, pale yellow brown, calcareous, indistinct laminations.
	871				.40	
	872				.48	
	873	.43 .46			.43 .46	875.45' to 875.74' Oil shale, medium to high grade, thinly laminated, dark yellow brown.
	874	.28			.28	875.74' to 876.04' Oil shale, low grade, pale yellow brown, indistinct laminations.
	875	.19			.19	876.04' to 876.52' Oil shale, medium to high grade, dark and dusky yellow brown, thinly laminated.
	876	.62			.62	876.52' to 876.97' Oil shale, high grade, dusky yellow brown, thin laminations.
	877					876.97' to 878.29' Oil shale, low to medium grade, pale and moderate yellow brown.
	878	.45			.29	878.29' to 881.75' Oil shale, low grade, pale yellow brown, indistinct laminations.



## CLEVELAND — CLIFFS

16/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I.	
	879				.81	
	880					
	881				.92	881.75' to 882.42' Oil shale, medium grade, dark yellow brown, thinly laminated with very pale orange lenses of marlstone.
	882	.61			.61	882.42' to 882.72' Oil shale, high grade, very thin laminations of dusky yellow brown.
	883					882.72' to 883.29' Oil shale, medium grade, dark yellow brown, indistinct lamination.
	884					883.29' to 889.00' Oil shale, low grade, pale yellow brown, indistinct laminations.
	885				.55	
	886	.36 .88	Tortional Fractures		.50 .80	
	887				.59	
.80 X	888	.05			.05 .80	
#26	889				.36	889.00' to 895.00' Oil shale, medium grade, dark and pale yellow brown, thinly laminated.
RQD 84	890					891.10' Tuff band
	891				.52	
	892					892.10' & 892.22' Tuff lenses
	893				.21	
	894				.08	
	895				.72	895.70' to 897.20' Oil shale, medium to high grade, dark and dusky yellow brown.
	896					
	897					897.20' to 899.90' Oil shale, medium grade, dark and moderate yellow brown.
	898		.47 1.60		.43 .47	897.30' to 897.55' Tuff band
	899					899.90' to 901.52' Oil shale, low grade, pale yellow brown, some nahcolite in fracture.
	900	.85	.60			901.52' to 907.93' Oil shale, medium grade, dark yellow brown.
	901		.29			
	902				.25 .56	

## CLEVELAND — CLIFFS -

17/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	903					
	904					
	905				.60 .87	
	906		.10 //		.40	
.88 *	907				.88 .93	907.93' to 909.00' Oil shale, medium grade, dark and moderate yellow brown.
#27	908				.33	908.55' to 908.70' Tuff band
RQD 89	909				.77	909.00' to 914.20' Oil shale, low grade, pale yellow brown.
	910				.88	909.29' to 909.38' Tuff band, sandy texture
	911				.69	911.43' to 911.70' Tuff band, sandy texture
	912					
	913					
	914				.30	914.20' to 916.50' Oil shale, medium grade, dark yellow brown.
	915				.02 .88	
	916				.36 .81	916.49' to 916.57' Tuff, sandy texture 916.50' to 927.50' Oil shale, low grade, pale and moderate yellow brown.
	917		.31 //		.31	
	918					
	919		.37 //		.37	
	920					
	921					
	922					922.24' to 922.28' Tuff
	923				.21	923.22' Tuff lens
	924					
	925				.56	
	926					

## CLEVELAND — CLIFFS -

18/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
.50 X	927				.05 .50 .91	<u>927.15' to 927.27'</u> Sandstone lens <u>927.50' to 933.43'</u> Oil shale, low grade, pale yellow brown.
#28	928					
RQD 99	929				.87	
	930					
	931				.71	
	932					
	933					
	934				.88	
	935					
	936					
	937				.08	<u>933.43' to 933.74'</u> Oil shale, high grade, dusky yellow brown. <u>933.74' to 934.08'</u> Oil shale, medium grade, dark and pale yellow brown. <u>934.08' to 934.25'</u> Oil shale, high grade, dusky yellow brown. <u>934.25' to 935.00'</u> Oil shale, medium grade, dark and pale yellow brown. <u>935.00' to 940.68'</u> Oil shale, low grade, pale yellow brown, slightly wavy bedding.
	938		Rubble		.65 .80	
	939					
	940					
	941					
	942					
	943				.06	
	944					
.94 X	945				.78 .94	
#29	946					
RQD 97	947					<u>947.30' to 952.09'</u> Wavy beds, tuff-sandstone, contorted, light to medium gray, with an inter-bedded, low grade, oil shale zone.
	948				.07 .75	
	949				.18 .76	
	950				.48	

## CLEVELAND — CLIFFS -

19/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	951		.42		.42	952.09' to 952.45' Oil shale, low grade, pale yellow brown.. 952.45' to 955.58' Oil shale, medium grade, dark and moderate yellow brown, medium to thin laminations.
			Rubble		.51	
	952		.10		.10	
	953					955.58' to 962.00' Oil shale, low to medium grade, pale and moderate yellow brown.
	954					
	955				.58	
	956					
	957				.77	
	958					
	959					962.00' to 968.05' Oil shale, low grade, pale and moderate yellow brown.
	960					
	961				.66	
	962					
	963					
	964					
	965				.25 .63	
.45 X	966				.45	
#30	967				.55 .82	
RQD 98	968				.95	968.05' to 969.35' Oil shale, low grade, dark yellow orange, and moderate yellow brown.
	969					969.35' to 978.00' Oil shale, low grade, dark yellow orange and dark yellow brown.
	970					
	971				.12	
	972					
	973					
	974				.12	

## CLEVELAND — CLIFFS

20/25

		HOLE NO. 3		PROJECT: Pacific Property		
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
	975				.24	
	976					
	977					
	978					978.00' to 979.15' Oil shale, medium grade, moderate and dusky yellow brown.
.70 X	979	.70				979.15' to 979.70' Oil shale, low grade, moderate yellow brown.
#31	980				.25	979.70' to 984.40' Oil shale, medium grade, moderate and dark yellow brown, thin laminations.
RQD 72	981				.43	
	982					
	983					
	984					984.40' to 985.45' Oil shale, medium grade, moderate and dusky yellow brown.
	985				.01	985.45' to 987.80' Oil shale, medium grade, moderate yellow brown.
	986					
	987				.13	987.80' to 988.70' Oil shale, medium grade, moderate and dusky yellow brown, medium laminations.
	988					988.70' to 993.00' Top of A-Groove, oil shale, very low grade, very pale orange and pale yellow brown.
	989				.76	
	990				.15	
	991				.14, .27 .47, .63 .93, .97	
	992				.22, .40 .69, .73 .93	993.00' to 994.45' Oil shale, medium grade, dark yellow orange with thin dark yellow brown laminations.
	993				.15 .30	994.45' to 996.30' Oil shale, low to medium grade, moderate and dark yellow brown laminations.
	994				.08, .18 .45, .70	
	995					
	996				.06, .07 .26, .68	996.30' to 999.55' Base of A-Groove, oil shale, low grade, pale and moderate yellow brown, thin laminations.
	997		.67		.67	
	998		.60		.60	

## CLEVELAND — CLIFFS -

21/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I.	
.75 X	999				.29 .75	999.55' to 1,001.40' Oil shale, low to medium grade, pale and moderate yellow brown with minor dark yellow brown, medium laminations, wavy irregular bands.
#32	1,000				.67	1,001.40' to 1,002.00' Oil shale, medium grade, very thin laminations of pale, dark, and dusky yellow brown.
RQD 93	1,001					1,002.00' to 1,002.20' Oil shale, high grade, solid, very thinly laminated, dusky yellow brown.
	1,002				.18	1,002.20' to 1,002.40' Oil shale, medium grade, dark and moderate yellow brown, distinct thick lamination.
	1,003				.31 .50	1,002.40' to 1,003.32' Oil shale, low medium, distinct laminations, pale and moderate yellow brown.
	1,004				.37	1,003.32' to 1,005.00' Oil shale, low grade, pale and moderate yellow brown, very pale orange, distinct bands.
	1,005				.09 .72	1,003.50' to 1,003.56' Tuff band
	1,006				.50	1,005.00' to 1,006.06' Oil shale, low grade, pale yellow brown with black high grade lenses (1/4" - 1/2").
	1,007				.40 .65 .85	1,006.06' to 1,007.30' Oil shale, medium to high grade, dusky and pale yellow brown, fine wavy laminations.
	1,008					1,007.30' to 1,007.60' Tuff, light gray, sandy texture.
	1,009				.04	1,007.60' to 1,007.90' Oil shale, medium to high grade, dusky and dark yellow brown, thinly laminated.
	1,010					1,007.90' to 1,008.75' Oil shale, low to medium grade, pale with dark yellow brown, thinly laminated.
	1,011				.42	1,008.75' to 1,009.90' Oil shale, low grade, bands of pale and moderate yellow brown and very pale orange.
	1,012				.12	1,009.90' to 1,010.50' Oil shale, very low grade, very pale orange and pale yellow brown, calcareous.
	1,013				.37 .64	1,010.50' to 1,011.90' Oil shale, high grade, dusky yellow brown, minor dark yellow brown, very thin laminations.
	1,014				.26	1,011.90' to 1,014.45' Oil shale, low grade, pale and moderate yellow brown, indistinct, medium laminations.
	1,015				.22	1,012.20' Tuff, light gray, 1/2" band
	1,016				.51	1,012.65' to 1,012.65' Tuff, light gray
	1,017					1,014.45' to 1,014.90' Oil shale, low grade, thin laminations of dark, pale, and moderate yellow brown.
.70 X	1,018				.48 .70	1,014.90' to 1,016.60' Oil shale, low grade, pale and moderate yellow brown, indistinct laminations.
#33	1,020				.60	1,016.60' to 1,018.55' Oil shale, low grade, very pale orange, pale yellow brown with minor dark yellow brown 1/2" bands.
RQD 98	1,021				.89	1,018.55' to 1,019.40' Oil shale, low grade, pale yellow brown, indistinct bands.
	1,022					

## CLEVELAND — CLIFFS

22/25

HOLE NO. 3

PROJECT: Pacific Property

RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P P	JOINT	SLICK	C. I.	
	1,023				.01 .60	1,019.40' to 1,019.80' Mahogany Marker, medium light gray, siliceous tuff, with sandy texture.
	1,024					1,019.80' to 1,020.50' Oil shale, low grade, very pale orange, pale and moderate yellow brown.
	1,025				.73	1,020.50' to 1,020.90' Oil shale, low grade, pale yellow brown with thin laminations of dark yellow brown.
	1,026					1,020.90' to 1,023.17' Oil shale, low grade, pale yellow brown with thin laminations of moderate yellow brown.
	1,027				.94	1,023.17' to 1,024.60' Oil shale, medium grade, moderate and dusky yellow brown.
	1,028					1,024.60' to 1,027.60' Oil shale, low grade, pale yellow orange, indistinct bands.
	1,029					1,027.60' to 1,029.50' Oil shale, medium to high grade, moderate and dusky yellow brown.
	1,030				.80	1,029.50' to 1,030.10' Oil shale, low grade, moderate yellow brown.
	1,031					1,030.10' to 1,037.40' Oil shale, medium to high grade, dark and dusky yellow brown, medium to wide bands.
	1,032				.10 .29	
	1,033				.49 .99	
	1,034					
	1,035				.64	
	1,036				.92	
.15 X	1,037				.15	1,037.40 to 1,038.89' Oil shale, low to medium grade, pale, moderate and dark yellow brown.
	1,038					1,038.80' to 1,039.85' Oil shale, low grade, pale yellow brown, calcareous.
#34	1,039					1,039.85' to 1,040.07' Oil shale, medium grade, dark and moderate yellow brown.
RQD 96	1,040					1,040.07' to 1,040.60' Oil shale, low grade, pale yellow brown, calcareous.
	1,041					1,040.60' to 1,040.70' Oil shale, medium grade, dark and moderate yellow brown.
	1,042					1,040.70' to 1,041.35' Oil shale, low grade, pale and moderate yellow brown, bedding angle 5°.
	1,043				.60	1,041.35' to 1,041.95' Oil shale, medium grade, pale and dark yellow brown, thinly laminated.
	1,044					1,041.95' to 1,045.25' Oil shale, low grade, pale yellow brown, indistinct laminations, bedding 10°.
	1,045					1,045.25' to 1,046.75' Oil shale, medium grade, pale and dark yellow brown, discontinuous laminations 1/2", bedding angle increases.
	1,046				.86	1,046.75' to 1,047.73' Oil shale, low grade, pale yellow brown, horizontal bedding.

## CLEVELAND — CLIFFS-

23/25

HOLE NO. 3		PROJECT: Pacific Property				
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P. P.	JOINT	SLICK	C. I.	
	1,047				.71	1,047.28' Tuff, orange and black
	1,048					1,047.73' to 1,048.52' Oil shale, medium grade, very thin, dark and dusky yellow brown laminations.
	1,049				.48	1,048.52' to 1,048.88' Oil shale, medium grade, pale and moderate yellow brown, bedding angle 5°.
	1,050					1,048.88' to 1,051.45' Oil shale, low grade, pale yellow brown, indistinct laminations, bedding angle 10°.
	1,051	.40				1,051.40' Tuff, orange and black
	1,052					1,051.45' to 1,052.00' Oil shale, medium grade, dark and dusky 1/4" bands.
	1,053					1,052.00' to 1,054.60' Oil shale, low grade, pale and moderate yellow brown.
	1,054		.49		.35	1,054.60' to 1,055.10' Oil shale, low to medium grade, pale and moderate yellow brown.
	1,055		.92		.92	1,055.10' to 1,056.20' Oil shale, medium to high grade, very thin laminations, dark and dusky yellow brown.
	1,056				.80	1,055.75' Tuff, orange and black
.22	1,057				.08	1,055.90' Tuff, orange and black
X			Rubble		.22	1,056.10' Tuff, orange and black
	1,058				.77	1,056.20' to 1,059.12' Oil shale, low grade, very pale orange with pale yellow brown bands.
#35						1,056.38' Tuff, orange and black
RQD 98	1,059					1,059.12' to 1,061.00' Oil shale, low to medium grade, with wavy laminations of pale and moderate yellow brown.
	1,060					1,061.00' to 1,062.18' Oil shale, low grade, pale yellow brown with indistinct laminations.
	1,061					
	1,062					1,062.18' to 1,062.90' Oil shale, low to medium grade, very thin laminations of very pale orange and pale yellow brown.
	1,063					1,062.40' Tuff, gray and very pale orange, 1/2"
	1,064	.00 .45			.00 .45	1,062.90' to 1,063.95' Oil shale, low grade, pale yellow brown.
	1,065					1,063.95' to 1,064.75' Oil shale, low to medium grade, pale yellow brown with thin laminations of dark yellow brown.
	1,066				.28	1,064.75' to 1,065.50' Oil shale, low to medium grade, pale and dark yellow brown, very thin wavy laminations.
	1,067				.21	1,065.50' to 1,069.15' Oil shale, low grade, moderate yellow brown with very thin dark yellow brown laminations.
	1,068				.03	1,069.15' to 1,070.95' Oil shale, medium grade, 1/4" - 1/2" bands of dark, dusky, and moderate yellow brown.
	1,069				.79	
	1,070				.84	1,070.95' Tuff, dark gray, 1/2"
						1,070.95' to 1,072.00' Oil shale, low grade, pale and moderate yellow brown.



## CLEVELAND — CLIFFS.

24/25

		HOLE NO. 3		PROJECT: Pacific Property		
RUN	DEPTH	FRACTURES				LITHOLOGIC DESCRIPTION
		P.P.	JOINT	SLICK	C. I.	
	1,071					1,072.00' to 1,072.75' Oil shale, very low grade, very pale orange and pale yellow brown, 1" bands, biscuit partings.
	1,072	.60 .95			.60 .95	1,072.75' to 1,072.95' Oil shale, low grade, pale yellow brown.
	1,073	.58 .70 .97			.58 .70 .97	1,072.95' to 1,074.03' Oil shale, very low grade, very pale orange and moderate yellow brown, biscuit partings.
	1,074	.78				1,074.03' to 1,075.05' Oil shale, low grade, pale yellow brown.
.22 X	1,075	.38			.21 .22	1,074.78' Tuff, gray, 1/16"
#36	1,076	.30				1,075.05' to 1,075.21' Oil shale, medium grade, dark and moderate yellow brown.
RQD 85	1,077	.47				1,075.33' to 1,075.39' Tuff, brown
	1,078					1,075.21' to 1,077.47' Oil shale, low grade, pale and moderate yellow brown with thin laminations of dark yellow brown.
	1,079				.88	1,076.05' to 1,076.30' Tuff, gray 1,076.47' Tuff, orange, 1/2" band
	1,080					1,077.47' to 1,078.40' Oil shale, medium to high grade, dark yellow brown with very thin dusky yellow brown laminations.
	1,081	.86			.86	1,078.40' to 1,078.70' Oil shale, low to medium grade, pale and moderate yellow brown.
	1,082	.38 .46				1,078.70' to 1,081.75' Oil shale, low grade, pale and moderate yellow brown laminations.
	1,083	.86 .98			.98	1,081.75' to 1,082.46' Oil shale, high grade, dark yellow brown with very thin dusky yellow brown laminations.
	1,084	.30 .48				1,082.46' to 1,082.80' Oil shale, low to medium grade, dark, pale, and moderate yellow brown thin to medium laminations.
	1,085				.49	1,082.80' to 1,083.86' Oil shale, low grade, pale yellow brown, indistinct laminations.
	1,086				.51	1,083.86' to 1,084.90' Oil shale, very low grade, very pale orange and moderate yellow brown.
	1,087	.08	.35		.35 .95	1,084.48' Tuff, light gray, 1/2"
	1,088	.70	.03		.53 .70	1,084.90' to 1,085.49' Oil shale, low to medium grade, pale and moderate yellow brown.
	1,089		.41		.64	1,085.49' to 1,085.65' Oil shale, medium to high grade, dark and dusky yellow brown, thinly laminated.
	1,090		.80		.43	1,085.65' to 1,087.08' Tuff, dark brown, sandy texture
	1,091	.73			.73	1,087.08' to 1,087.35' Oil shale, medium grade, dark yellow brown waving banding.
	1,092					1,087.35' to 1,088.70' Tuff, light brown, sandy texture
	1,093				.33 .82	1,088.70' to 1,094.00' Oil shale, low grade, pale and moderate yellow brown with medium laminations of dark yellow brown, laminations thicken downward.
	1,094					1,094.00' to 1,095.09' Oil shale, low to medium grade, pale and moderate yellow brown bands.

## 25/25

HOLE NO. 3

PROJECT: Pacific Property

[illegible]